

WHAT IS CLAIMED IS:

1 1. A vacuum fluorescent display, comprising:
2 first and second substrates provided opposing one another, and a side glass provided between
3 the first and second substrates to seal a space therebetween;
4 filaments for emitting electrons when a voltage is applied thereto;
5 first and second filament supports mounted to one of the substrates and supporting opposite
6 sides of each of the filaments; and
7 an anode provided on at least one of the substrates, the anode being illuminated by electrons
8 to realize images,
9 with at least one of the filament supports are formed of complex-type, the complex type
10 filament supports includes a fixed plate which is fixed to the substrate, at least one tension arm
11 mounted to the fixed plate, at least one tension head provided on a distal end of each of the tension
12 arms, and at least one tensionless head to which one of the filaments is attached, the tensionless head
13 being mounted to one of the tension arms.

1 2. The vacuum fluorescent display of claim 1, wherein the first and second filament supports
2 are formed of complex-type, and either a tensionless head or a tension head is mounted to the second
3 complex-type filament support opposing a tension head of the first complex-type filament support,
4 and a tension head is mounted to the second complex-type filament support opposing a tensionless
5 head of the first complex-type filament support.

1 3. The vacuum fluorescent display of claim 2, wherein the first and second complex-type
2 filament supports satisfy:

3
$$M=M'=N-(N-1)$$

4 where M is a total number of the tensionless heads provided on the first complex-type
5 filament support, M' is a total number of the tensionless heads provided on the second complex-type
6 filament support, and N is a total number of the filaments.

1 4. The vacuum fluorescent display of claim 3, wherein the tensionless heads are provided
2 toward short ends along a lengthwise direction of the fixed plates.

1 5. The vacuum fluorescent display of claim 4, wherein the tensionless heads are integrally
2 formed to the tension arms at ends of the same opposite where the tension heads are formed.

1 6. The vacuum fluorescent display of claim 5, wherein a cutaway section is formed in each
2 of the tensionless heads accommodating a gap between the tension heads and the tensionless heads
3 being increased.

1 7. The vacuum fluorescent display of claim 2, wherein the first and second complex-type
2 filament supports satisfy:

3
$$M=N-(N-1)$$

4
$$N-(N-2) \leq M' \leq N-1$$

5 where M is a total number of the tensionless heads provided on the first complex-type
6 filament support, M' is a total number of the tensionless heads provided on the second complex-type
7 filament support, and N is a total number of the filaments.

1 8. The vacuum fluorescent display of claim 7, wherein the tensionless heads are provided
2 toward short ends along a lengthwise direction of the fixed plates.

1 9. The vacuum fluorescent display of claim 8, wherein the tensionless heads are integrally
2 formed to the tension arms at ends of the same opposite where the tension heads are formed.

1 10. The vacuum fluorescent display of claim 8, wherein, among all of the tensionless heads,
2 the tensionless heads provided toward short ends along the lengthwise direction of the fixed plates
3 are integrally formed to the tension arms at ends of the same opposite where the tension heads are
4 formed.

1 11. The vacuum fluorescent display of claim 10, wherein a cutaway section is formed in each
2 of the tensionless heads that is adjacent to a tensionless head such that a gap between the tension
3 heads and the tensionless heads is increased.

1 12. The vacuum fluorescent display of claim 2, wherein the first and second complex-type

filament supports satisfy:

$$N-(N-2) \leq M \leq (N-1)$$

$$N-(N-2) \leq M' \leq N-1$$

where M is a total number of the tensionless heads provided on the first complex-type filament support, M' is a total number of the tensionless heads provided on the second complex-type filament support, and N is a total number of the filaments.

13. The vacuum fluorescent display of claim 12, wherein, among all of the tensionless heads, the tensionless heads provided toward short ends along the lengthwise direction of the fixed plates are integrally formed to the tension arms at ends of the same opposite where the tension heads are formed.

14. The vacuum fluorescent display of claim 13, wherein a cutaway section is formed in each of the tensionless heads that is adjacent to a tensionless head accommodating a gap between the tension heads and the tensionless heads being increased.